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Width of 2.3, *the Central Coloured Zone, and* 4.5.

1895–6	7″·9	20 nights	1897–8	8″·3	16 nights
6–7	10·9	23 „	8–9	10·5	18 „

Width of the Band 2.3.

1895–6	3″·3	30 nights	1897–8	3″·5	14 nights
6–7	3·8	20 „	8–9	3·1	16 „

Width of the Band 4.5.

1895–6	about 1″·0		Very narrow : single.
6–7	3·9	17 nights	(double)
7–8	1·3	11 „	(single)
8–9	3·5	14 „	(double)

Width of the Band 1. (*S. Temperate Band.*)

1896–7	1″·1		1898–9	1″·1	1 night
7–8	1·4	2 nights			

IV.

Notes on the Satellites and their Shadows.

1889 May 6. II. transit I.—Ingress about $9^h\ 42^m$; it was much brighter than the limb, but grew gradually fainter, and was but just visible when in mid-transit. It moved along a narrow bright zone between two grey bands a good way N. of the equator.

1899 May 7. I. transit I. Satellite much brighter than the limb; grew fainter as it advanced; was very faint at $9^h\ 25^m$; invisible at $9^h\ 35^m$. It moved along a bright zone.

1899 May 30. I. transit I. Ingress about $8^h\ 51^m$; invisible at $9\frac{1}{2}^h$ and 10^h. It moved along the N. edge of the N. equatorial dark belt, and was again visible at $10^h\ 40^m$. It did not appear dusky or dark at any time during transit. The shadow's ingress took place about $9^h\ 37^m$. It often seemed elongated in a direction parallel to the equator during the first hour of transit; when central it was circular. At and after central transit it seemed smaller than before transit. The same remarks apply to the transit of the shadow of I. on June 6.

On June 15 the shadow of I. was watched during the first half of its transit; no changes of shape were seen: central about $8^h\ 50^m$.

On July 15 I. was observed at ingress: it moved along a ark band, and became invisible 20^m after ingress at $8^h\ 50^m$.

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V.

PHENOMENA OF JUPITER'S SATELLITES.

Day of Obs. 1899.	Satellite.	Phenomenon.	Phase.	G.M.T. of Observation.			G.M.T. of *N. Almanac.*		
				h	m	s	h	m	s
May 6	II.	Tr. I.	External contact	9	43		9	42	0
			Bisection	9	45				
			Internal contact	9	46				
	II.	Sh. I. (*a*)	Internal contact	10	14		10	11	0
7	I.	Tr. I. (*b*)	External contact	9	7		9	7	0
			Bisection	9	8				
			Internal contact	9	9	30			
	I.	Sh. I.	Internal contact	9	27		9	24	0
	I.	Tr. E.	Internal contact	11	14		11	18	0
			Bisection	11	15	30			
			External contact	11	17				
30	I.	Tr. I. (*c*)	External contact	8	50	30	8	51	0
			Internal contact	8	55				
	I.	Sh. I.	Internal contact	9	37		9	37	0
	I.	Tr. E.	Internal contact	10	59		11	3	0
			External contact	11	2	30			
31	III.	Ec. D. (*d*)	Last seen	8	32	16	8	32	36
	I.	Ec. R.	First seen	9	0	44	9	0	55
			Full?	9	2				
	II.	Sh. E.	Internal contact	9	25	0	9	30	0
	III.	Ec. R.	First seen	10	2	41	10	2	55
			Bisection?	10	5				
			Full?	10	10				
June 6	I.	Tr. I. (*e*)	External contact	10	39	30	10	39	0
			Internal contact	10	42	30			
14	I.	Oc. D.	External contact	9	39	30	9	39	0
			Just gone	9	41	30			
	I.	Tr. E.	Internal contact	9	3		9	7	0
15	I.	Sh. E. (*f*)	Internal contact	10	5		10	8	0
			Bisection	9	4	30			
			External contact	9	6				
July 15	I.	Tr. I. (*g*)	External contact	8	49	30	8	50	0
			Bisection	8	51				
			Internal contact	8	52				
16	II.	Tr. I. (*h*)	External contact	9	25	30	9	19	0

Notes.

(*a*) Much boiling on limb. (*b*) Bad definition to-night. (*c*) Very bad definition. (*d*) Very much motion to-night. (*e*) Planet very low; bad definition. (*f*) Much boiling on limb of planet. (*g*) As on June 15. (*h*) Violent motion.

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Ephemeris for Physical Observations of

Greenwich Noon.		P.	L—O.	B.	Apparent Diameter. Equat. 2*a*.	Defect.	Polar 2*b*.	*d*.	Q.	B′.
1899.		°	°	°	′	′	″	°	°	°
Dec.	17	13·15	102·726	−2·947	32·08	0·06	30·06	4·78	284·33	−3·14
	19	12·98	103·143	2·948	32·16	0·06	30·14	5·04	284·10	3·15
	21	12·81	103·557	2·950	32·25	0·07	30·22	5·30	283·88	3·15
	23	12·65	103·967	2·952	32·34	0·08	30·31	5·56	283·66	3·15
	25	12·48	104·375	2·953	32·43	0·08	30·39	5·81	283·45	3·15
	27	12·32	104·777	−2·955	32·53	0·09	30·49	6·06	283·24	−3·15
	29	12·16	105·176	2·957	32·63	0·10	30·58	6·30	283·03	3·15
	31	12·00	105·571	2·959	32·74	0·11	30·69	6·54	282·82	3·16
1900. Jan.	2	11·84	105·961	2·960	32·85	0·11	30·79	6·77	282·62	3·16
	4	11·69	106·348	2·962	32·97	0·12	30·91	7·00	282·42	3·16
	6	11·54	106·728	−2·964	33·09	0·13	31·02	7·23	282·23	−3·16
	8	11·38	107·103	2·966	33·21	0·14	31·13	7·45	282·04	3·16
	10	11·23	107·473	2·968	33·34	0·15	31·25	7·66	281·86	3·17
	12	11·09	107·838	2·969	33·48	0·16	31·38	7·87	281·78	3·17
	14	10·94	108·196	2·971	33·62	0·16	31·51	8·08	281·51	3·17
	16	10·80	108·550	−2·973	33·77	0·17	31·65	8·28	281·35	−3·17
	18	10·65	108·896	2·975	33·92	0·18	31·79	8·47	281·18	3·17
	20	10·51	109·237	2·976	34·07	0·19	31·93	8·65	281·01	3·17
	22	10·37	109·570	2·978	34·23	0·20	32·08	8·83	280·85	3·18
	24	10·23	109·898	2·979	34·39	0·21	32·23	9·00	280·69	3·18
	26	10·10	110·217	−2·981	34·56	0·22	32·39	9·16	280·53	−3·18
	28	9·97	110·530	2·982	34·73	0·23	32·55	9·32	280·38	3·18
	30	9·84	110·835	2·984	34·91	0·24	32·72	9·47	280·23	3·18
Feb.	1	9·71	111·132	2·985	35·09	0·25	32·88	9·61	280·09	3·18
	3	9·59	111·421	2·987	35·28	0·26	33·06	9·74	279·95	3·19
	5	9·48	111·702	−2·988	35·47	0·27	33·24	9·87	279·82	−3·19
	7	9·35	111·973	2·990	35·66	0·27	33·42	9·98	279·69	3·19
	9	9·24	112·238	2·992	35·86	0·28	33·61	10·09	279·56	3·19
	11	9·13	112·492	2·994	36·06	0·29	33·79	10·19	279·44	3·19
	13	9·03	112·738	2·996	36·26	0·29	33·98	10·28	279·32	3·20
	15	8·93	112·973	−2·999	36·47	0·30	34·18	10·36	279·20	−3·20
	17	8·83	113·199	3·001	36·68	0·30	34·38	10·43	279·09	3·20
	19	8·74	113·416	3·003	36·90	0·31	34·59	10·49	278·98	−3·20
	21	8·65	113·623	3·005	37·12	0·31	34·79	10·54	278·87	3·21
	23	8·57	113·819	−3·007	37·34	0·32	35·00	10·58	278·77	−3·21